

For the 17 exercises given below:

A. DRAW THE FLOWCHART

B. WRITE THE PSEUDOCODE/ALGORITHM

C. IMPLEMENT IT IN SCRATCH AND FLOWGORITHM

1. Classify the angles (as acute, obtuse, right, straight etc..) for a user entered number of entries.
2. Find the largest among n numbers entered by the user.
3. Find all the roots of a quadratic equation $ax^2+bx+c=0$ as long as the user wishes to perform the computation.
4. Calculate factorial of n numbers.
5. Generate prime numbers within a range.
6. Check whether given two numbers are amicable numbers or not.
For example, lets a pair or two number pair is (220,284),
For the proper divisor of 220 are 1, 2, 4, 5, 10, 11, 20, 22, 44, 55, 110, of which the sum is 284. And the proper divisor of 284 are 1, 2, 4, 71, 142 of which the sum is 220.
7. Reverse numbers as long as the user wishes to do so.
8. Find the sum of the squares and cubes of the first 50 natural numbers.
9. Find the area of different shapes and volume of different objects depending on user's options and continue as long as the user is interested in the process.
10. Read customer category and total amount. Calculate discount. The discount is as follows.

Class A customer:

Total amount	Discount % in (Rs.)
5001 and above	4.50
2001-5000	3.50
1000-2000	2.50
Less than 1000	1.50

Class B customer:

Total amount	Discount % in (Rs.)
5001 and above	3.00
2001-5000	2.00
1000-2000	1.00
Less than 1000	0.50

11. There is a blood donation camp being organized in which 'n' people are participating. Among the 500 people the eligible people should have age > 18 and weight greater than 45 kgs. Count the number of people who are eligible and not eligible by displaying the reason for ineligibility.

12. A student is graded in an academic institution according to the following rules:

Average Marks	Grade
80 to 100	Honours
60 to 79	First Division
50 to 59	Second Division
40 to 49	Third Division
0 to 39	Fail

Enter the average marks for n students and classify them into one of the above categories and count the number of students in each category

13. Admission into a professional course is subject to the following conditions:

- Marks in Mathematics ≥ 60
- Marks in Physics ≥ 50
- Marks in Chemistry ≥ 40
- Total in all three subjects ≥ 200

OR

Total in Mathematics and Physics ≥ 150

Given the marks in the three subjects, draw a flowchart to process the applications to list the eligible candidates and the count of eligible and ineligible candidates.

14. An employee can apply for a loan at the beginning of every six months. But he will be sanctioned the amount according to the following company rules:

Rule 1: A employee cannot enjoy more than two loans at any point of time

Rule 2: Maximum permissible total loan is limited to 50000 and depends upon the category of the employee

Input the loan values, calculate and display the pending loans, requested loans and sanctioned loans with appropriate messages.

15. Find all even positive numbers in an array A and copy them into Array B.

16. Read numbers 1 to n in an array. Find the frequency of numbers in the array and display the frequency table.

17. Read the marks of x subjects for n students in a class using 2-dimensional array. Provide a menu to find the class average, the average for a subject, the percentage of marks for a student.